



National Polar-orbiting Operational Environmental Satellite System (NPOESS)

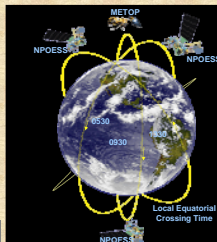


NPOESS Overview

Tri-agency Effort to Leverage and Combine Environmental Satellite Activities

- Mission**
- Provide a national, operational, polar-orbiting remote-sensing capability
 - Achieve National Performance Review (NPR) savings by converging DoD and NOAA satellite programs
 - Incorporate new technologies from NASA
 - International Cooperation

Saves as Much as \$1.3 Billion from Cost of Previously Planned Separate Developments

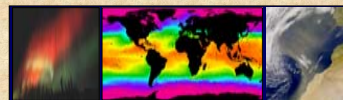


NPOESS Acquisition & Operations (A&O) Overview

- Contract awarded on August 23, 2002 to Northrop Grumman Space Technology
- Contract consists of:
 - 6 satellites
 - Taking over all government instrument contracts
 - Buying all "leveraged" instruments
 - Integrating Government-provided instruments (A-DCS and SARSAT)
- Building and deploying all ground segments
- Command, Control and Communications (C3)
- Interface Data Processing (IDP)
- Software for worldwide users (field terminals)
- System Operations through IOC (2011)
- with option to 2019

A Shared System Performance Responsibility (SSPR) Contract

NPOESS Vision

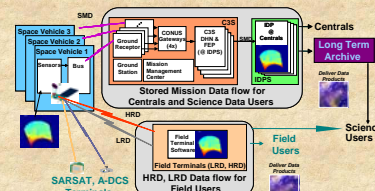


The IPO and NGST-Raytheon Team

working in a spirit of shared ownership to develop and deploy the next generation single, national, polar-orbiting environmental remote-sensing capability

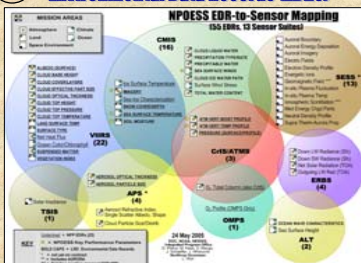
A Single Government - Contractor Team with a Common Vision, Mission, and Objective

Mission Data Flow

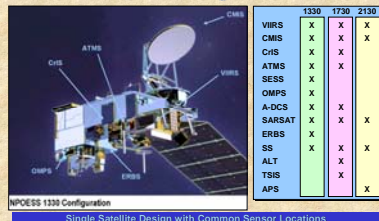


Timely, Accurate, Reliable Data from Sensors to Users

Environmental Data Records (EDRs)



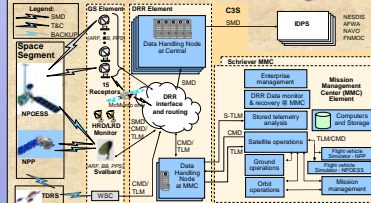
Space Segment



Single Satellite Design with Common Sensor Locations

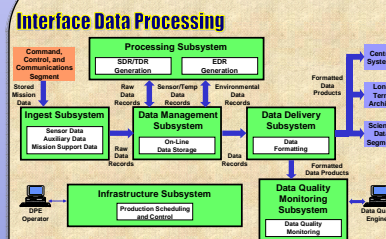
- VIIRS: Visible / Infrared Imager / Radiometer Suite
- CMIS: Conical Scanning Microwave Imager / Sounder
- CrIS: Cross-track Infrared Sounder
- ATMS: Advanced Technology Microwave Sounder
- SESS: Space Environment Sensor Suite
- OMPS: Ozone Mapping and Profiler Suite
- A-DCS: Advanced Data Collection System
- SARSAT: Search and Rescue Satellite-Aided Tracking
- APS: Aerosol Polarimetry Sensor
- ERBS: Earth Radiation Budget Sensor
- ALT: Radar Altimeter
- TSIS: Total Solar Irradiance Sensor

Command, Control and Communications (C3) Segment

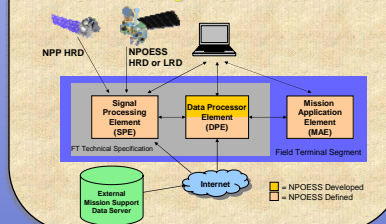


Low-cost, reliable, and timely data delivery with flexibility to accommodate system growth and technology insertion

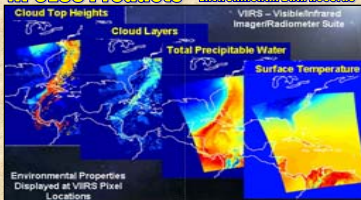
IDPS/FTS



Field Terminal Segment



NPOESS Products



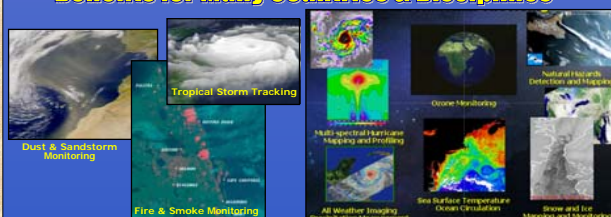
NPOESS System Architecture



Program Schedule



Benefits for Many Countries & Disciplines

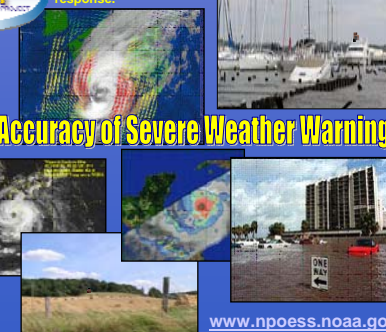


NPOESS Preparatory Project (NPP)

- Instrument Risk Reduction - 2008 Launch
- Early delivery / Instrument-level test/system-level integration & test
 - VIIRS - Visible/IR Imager Radiometer Suite (IPO)
 - CrIS - Cross-track IR Sounder (IPO)
 - ATMS - Advanced Technology Microwave Sounder (NASA)
 - OMPS - Ozone Mapping and Profile Suite (IPO)
- Provides lessons learned and allows time for any required modifications before NPOESS first launch
- Ground System Risk Reduction
- Early delivery and test of a subset of NPOESS-like ground system elements
- Early User Evaluation of NPOESS data products
- Provides algorithms / Instrument verification and opportunities for instrument calibration / validation prior to first NPOESS launch
- Allows for algorithm modification prior to first NPOESS launch
- Continuity of data for NASA's EOS Terra/Aqua/Aura missions

Protect Safety of Life and Property

Improved Microwave Imagery/Sounding products will improve prediction of wind speed and direction. Increase in hurricane landfall forecast skill will save an estimated \$1 million per mile of coastline that does not have to be evacuated. Improved early warnings mitigate the devastating effects of floods through disaster planning and response.



Improve Accuracy of Severe Weather Warnings